REMARKS

The Office Action dated June 16, 2005 has been received and carefully noted. The following remarks are submitted as a full and complete response thereto. Claims 1-15 are pending in the above-cited application and are again submitted for consideration.

First, it is noted that claims 3 and 10 were rejected over *Spinney* in view of *Moreton*. (Office Action, page 4). However, claims 1 and 8, from which claims 3 and 10 depend, were rejected over the combination of *Spinney* in view of *Douceur*, as discussed below. Therefore, since claims 3 and 10 contain all of the subject matter of the independent claims from which they depend, the rejection of claims 3 and 10 is *per se* improper and should be withdrawn. As such, the finality of the prior Office Action should be reconsidered and withdrawn.

In the Office Action, claims 1, 2, 4-9 and 11-15 were rejected under 35 USC § 103(a) as being unpatentable over *Spinney* (U.S. Patent 5,414,704) in view of *Douceur* (U.S. Patent no. 6,067,547). The Office Action took the position that *Spinney* taught all of the elements of the rejected claims with the exception of directly indexing the index portion to the corresponding bucket portion, where *Douceur* was cited as curing that deficiency. Claims 3 and 10 were rejected under 35 USC § 103(a) as being unpatentable over *Spinney* in view of newly cited *Moreton* (U.S. Patent 5,506,624). The Office Action took the position that *Spinney* disclosed all of the elements of the claimed invention, with the exception of "XOR indexing said index portion to said bucket portion." *Moreton* was cited as curing the deficiencies in *Spinney*. Again, no mention is made of *Douceur* in the

second rejection. The above rejections are respectfully traversed according to the remarks that follow.

The present invention is directed, according to claim 1, to a method of performing a table look-up in a network device. The method includes receiving a data packet through an input port of the network device, parsing the data packet into an index portion and a corresponding bucket portion, indexing, directly, the index portion to the corresponding bucket portion and accessing address table information stored in an address look-up table using the bucket portion.

The present invention is directed, according to claim 8, to an address table look-up indexing device. The device includes a receiver portion of a port of a network device that receives an incoming data packet, a data parser that parses the data packet into an index portion and a corresponding bucket portion, an indexer that directly indexes the index portion to the bucket portion and an address lookup device that accesses an address look-up table using the corresponding bucket portion.

The present invention is directed, according to claim 15, to a network switch. The switch includes multiple ports used for receiving and exporting data, each of the multiple ports being connected to one another through a communications medium, and multiple Address Resolution Logic (ARL) devices, each of the multiple ARL devices being connected to one of the multiple ports, each of the multiple ports having a corresponding ARL device. Each of the multiple ARL devices includes a parser that parses data into an index portion and a corresponding bucket portion, an indexer that directly indexes the

index portion to a corresponding bucket portion and a look-up device that accesses table entries in a look-up table using the bucket portion.

As discussed in the present specification, the present invention enables an enhanced method and apparatus for table look up in address resolution. The process, illustrated for one embodiment in Fig. 2A, shows a 48 bit key parsed into an index portion (I) and a bucket portion (N). As illustrated in Fig. 2B, the index and bucket portions are used in concert to perform the table look up. It is respectfully submitted that the prior art of *Spinney* fails to disclose or suggest the elements of any of the presently pending claims. Therefore, the prior art fails to provide the critical and unobvious advantages discussed above.

The Office alleges in the rejection that *Spinney* teaches all of the elements of the claims with the exception of directly indexing the index portion to the corresponding bucket portion. *Spinney* is directed to a process of performing source and destination address lookups, where that lookup uses a combination of programmable hash algorithms, binary search algorithms and small content-addressable memory (CAM). While it is true that *Spinney* and the instant invention are concerned with address resolution, the methodologies employed are quite different.

For a clearer understanding of the process of address lookups in *Spinney*, one should refer to Fig. 8 thereof. Fig. 8 of *Spinney* illustrates that an input address is sent to the CAM and to a hash function to produce a hash address (88) and a remainder field (97). The hash address is used with the hash table (89) to produce a translation table

pointer to ultimately produce an address. The remainder field is used to determine the correct branching in a logic tree of the entries. It is apparently now acknowledged that *Spinney* fails to teach directly indexing the index portion to the corresponding bucket portion. Because of this, reference is also made to *Douceur*.

Douceur is directed to expansion of hash tables and contractions thereof for use with internal searching. The rejection makes specific reference to column 18, lines 21-26, of *Douceur* where it describes a pointer array with pointers corresponding to hash table segments. Once the scan of the bit values determines which segment contains the pointer to the appropriate list, the array can be directly indexed by that value to provide a pointer to the appropriate segment. However, even if the teachings of *Douceur* were somehow combined with *Spinney*, Applicants respectfully assert that the subject matter of the present claims are neither taught nor suggested.

Claim 1 recites "indexing, directly, said index portion to said corresponding bucket portion," with claims 8 and 15 reciting an indexer that indexes the index portion to the bucket portion. Paragraph [0043] of the instant specification recites "FIG. 2B is an illustration of an index segment I(1) linearly indexed to a bucket segment N(1), an index segment I(2) linearly indexed to a bucket segment N(2), an index segment I(3) linearly indexed to a bucket segment N(3) . . . Each index segment I selects a bucket segment N and the combination of index segment I and bucket segment N selects an entry in the table." The process of indexing of parsed portions is also further discussed in later sections of the specification.

If *Spinney* and *Douceur* were somehow combined, they would not combine to form a system that would teach or suggest the instant claims. *Douceur* does not address directly indexing parsed portions of packets. The pointer array in *Douceur* is not a portion of a packet and *Douceur* is only concerned with expansion or contraction of the hash table. If *Spinney* and *Douceur* were somehow combined, the teachings of *Douceur* might be used to change the use and formation of the hash table 89 in *Spinney*. The remainder field 97, in *Spinney*, would still not be used to "index, directly, said index portion to said corresponding bucket portion."

While the Office Action might allege that *Douceur* teaches the direct indexing of values, it does not teach or suggest the indexing of portions of a packet directly. Applicants further assert that one of ordinary skill in the art would not have been motivated to combine the cited references to reach the subject matter of the instant invention. As such, Applicants respectfully assert that the rejection of claims 1, 8 and 15 is improper because *Spinney* and *Douceur* fail to teach all of the elements of those claims. Similarly, the rejection of the dependent claims, namely claims 2-7 and 9-14, is also improper for at least the dependence of those claims on the independent claims. Reconsideration and withdrawal of the rejection are respectfully requested.

Additionally, Applicants respectfully assert that the rejection is guided merely by impermissible hindsight reasoning. "To prevent the use of hindsight based on the invention to defeat patentability of the invention, this court requires the examiner show a motivation to combine the references that create the case of obviousness. In other words,

the examiner must show reasons that the skilled artisan, confronted with the same problems as the inventor and with no knowledge of the claimed invention, would select the elements from the cited prior art references for combination in the manner claimed." In re Rouffet, 47 USPQ2d 1453 at 1458(CAFC 1998). In the instant case, the only reason to combine the references as alleged in the rejection, it that were possible, would be in view of Applicant's own disclosure. For this additional reason, Applicants respectfully assert that the rejections are improper and should be withdrawn.

In addition, the rejection of claims 3 and 10 also applied *Moreton*, but did not apply *Douceur*. *Moreton* is directed to a computer-implemented method of transmitting images from a transmitter to a receiver using a rotating pixel sample of blocks. While the rejection alleges that *Moreton* "teaches the method of using the XOR in a lookup hash table," *Moreton* fails to teach or suggest such disclosure. The cited section of *Moreton* details that bits of a counter value are input into a series of XOR functions. There is no disclosure of a lookup table, a hash table, nor a table of any kind. Thus, the rejection's motivation, i.e. reduce the amount of time and process to complete a table, to combine *Spinney* and *Moreton* cannot be upheld, since *Moreton* does not provide the disclosure that it has been alleged. Reconsideration and withdrawal of the rejection of claims 3 and 10 are respectfully requested.

If for any reason the Examiner determines that the application is not now in condition for allowance, it is respectfully requested that the Examiner contact, by

telephone, the undersigned attorney at the indicated telephone number to arrange for an interview to expedite the disposition of this application.

In the event this paper is not being timely filed, the applicant respectfully petitions for an appropriate extension of time. Any fees for such an extension together with any additional fees may be charged to Counsel's Deposit Account 50-2222.

Respectfully submitted,

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